



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMPUTING AND INFORMATICS
DEPARTMENT OF INFORMATICS**

QUALIFICATION: BACHELOR OF INFORMATICS	
QUALIFICATION CODE: 07BAIT	LEVEL: 6
COURSE CODE: PAI621S	COURSE: PRINCIPLES AND APPLICATION OF INFORMATICS
SESSION: NOVEMBER 2024	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 70

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S):	Dr Irja Shaanika
MODERATOR:	Mr Gabriel Nhinda

INSTRUCTIONS FOR THE CANDIDATE
<ol style="list-style-type: none">1. Answer ALL the questions on the answer scripts provided. Answer EACH section on a new page.2. Write clearly and neatly.3. Be guided by the number of marks allocated when answering the questions.4. Show all your calculations.5. Number your questions clearly.

PERMISSIBLE MATERIALS
1. Calculator.

**THIS EXAMINATION PAPER CONSISTS OF 7 PAGES
(INCLUDING THIS FRONT PAGE)**

Section A: Multiple Choice Questions

[10 Marks]





Each question is 1 mark.

1. If a task has two input arcs, it is the same as if the task was preceded by an?
 - A) Xor- split
 - B) Xor-join
 - C) AND-split
 - D) AND- join
2. An IT hardware store provides a Web front-end allowing its customers to purchase IT equipment online (e.g. tablets, laptops, accessories, printers). In the context of the order-to-cash process of this company, which of the following is likely to be modelled as a data store?
 - A) The shopping cart of a customer purchasing via the Web front-end
 - B) The history of a customer's past purchases
 - C) An invoice
 - D) The store's product catalogue

3. Which notation  represents a text annotation?

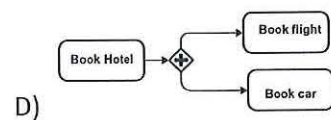
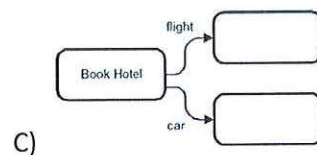
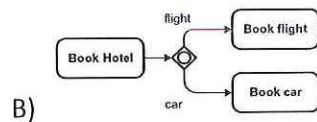
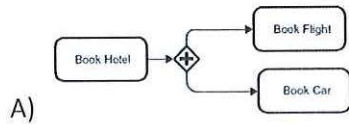
- A) Symbol a)
- B) Symbol b)
- C) Symbol c)
- D) Symbol d)

4. Which graphical element describes an association?

- a) 
- b) 
- c) 
- d) 

- A) Graphical element a)
- B) Graphical element b)
- C) Graphical element c)
- D) Graphical element d)

5. At first, a customer wants to book a hotel. Then he wants to book a flight and a car or only a car or only a flight. Which diagram describes this situation?



6. Which of the following refers to the activities that take place in the first phase of the Gartner hype cycle?
- R&D and Mass media hype begins
 - R&D and Negative press begins
 - R&D and less than 5% adoption
 - R&D and consolidation and failures
7. Which phase best describes the following statement: The technology is accessible only to limited entities such as research labs and startup firms:
- Trough of Disillusionment
 - Slope of Enlightenment
 - Innovation Trigger
 - Plateau of Productivity

8. In a process-oriented organisation, who is directly accountable for poor performance of a process?
- A) The process participants
 - B) The executive management team
 - C) The process owner
 - D) The process analyst
9. When two or more activities are not interdependent, we incorporate _____ in their modelling.
- A) Exclusive Join Gateway
 - B) Join AND Gateway
 - C) Events and Activities
 - D) Arch
10. Which of the following are possible reasons for decomposing a process model into sub-process models?
- A) When there are too many end events in a process model and we wish to reduce their number
 - B) When two events of the same type cannot be linked by a sequence flow
 - C) When there are too many crossing arcs in the model
 - D) When we want to avoid redundancies between multiple process models that share common parts

Section B: True and False Questions

[10 Marks]

1. Unlike other innovations, IT innovations have this in particular: they all reach the plateau of the productivity phase.
2. An organisation cannot outperform another organization offering similar kinds of services if it has better processes and executes them better.
3. In the first phase of the Hype Cycle (Innovation Trigger) - the technology is accessible only to limited entities such as startup firms.
4. The evaluation phase is concerned with the development of detailed process models.
5. Intermediate specialist refers to the capabilities of the work when People started to specialize in the art of delivering one specific type of goods, such as pottery, or providing one particular type of service, such as lodging for travellers.
6. For effectiveness, activities and events must be performed sequentially.
7. An exclusive (XOR) gateway can be used to model repetition.
8. The objective of the designation phase is to gain an understanding of the processes an organization is involved in as well as their interrelationships.
9. Since each discovery method has strengths and limitations, it is NOT recommended to utilize a mixture of the methods in a discovery project.
10. Lack of mass adoption means that the technology's commercial viability is unproven in the Innovation Trigger phase.

Section C: Structured Questions

[30 Marks]

Question 1: The fact that modelling knowledge and domain knowledge is often available in different persons in a modelling project has strong implications. List and discuss three challenges of process discovery. **[9marks]**

Question 2: As a country, we are at the 4th industrial stage. Discuss the worker's focus in the 4th industrial times. **[3 Marks]**

Question 3: Is there a linkage between the Porter Value chain and the company's competitive advantage? Justify your answer. **[5 Marks]**

Question 4: Propose and discuss which criteria organisations can use to evaluate process priority. **[9 marks]**

Question 5: What is a global process and state its advantages in the process modelling project. **[4 Marks]**

Section D: Practical Questions

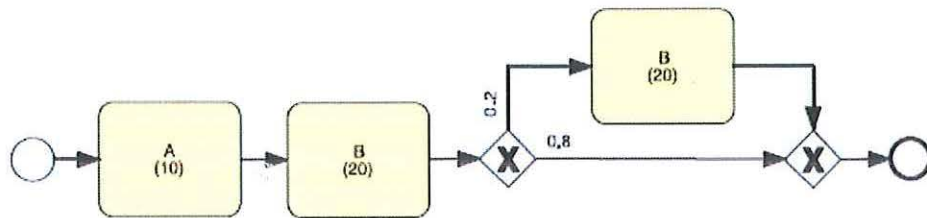
[20 Marks]

Question 1: Model the following fragment of a business process for approving a loan application. **[10 Marks]**

Once a loan application has been approved by the loan provider, an acceptance pack is prepared and sent to the customer. The acceptance pack includes a repayment schedule which the customer needs to agree upon by sending the signed documents back to the loan provider. The latter then verifies the repayment agreement: if the applicant disagreed with the repayment schedule, the loan provider cancels the application; if the applicant agreed, the loan provider approves the application. In either case, the process completes with the loan provider notifying the applicant of the application status

Question 2: Calculate the cycle time for the process below.

[10 marks]



The End